HP Vectra XU Series PCs Familiarization Guide

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Printed Manual Information

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Introduction

Overview

This guide is for experienced HP Response Center personnel, Customer Engineers, and reseller technicians. That is, personnel who have already completed the Vectra PC family training course, or equivalent, and have at least six months experience servicing HP Vectra PCs.

It is a self-paced training guide designed to train you to install, configure, and repair the PC.

Although you can follow the guide without any equipment, access to a PC is preferable.

Introduction	provides an introduction to this guide.
Product Overview and Features	is an introduction to the PC, explaining the difference between this range of PCs and other Hewlett-Packard PCs.
PC Hardware Structure	describes the package, including installing and removing accessories.
Troubleshooting and Repair	describes the replaceable parts and the utilities which are available to troubleshoot the PC. It also includes information on how to configure the PC using the SETUP program, and describes the Power-On Self Tests.

Welcome to the familiarization guide.

You will be able to read and understand this guide in less than two hours.

When you have completed it, you will be able to:

- install the PC
- configure the PC using the SETUP program
- repair the PC
- answer basic questions about the PC's features.

Information Flags

This course has flags that highlight safety instructions and important information. Be sure to pay special attention to the following symbols and text.

WARNING	The Warning symbol highlights text that describes a potential danger to personnel.

CAUTION	The Caution symbol highlights text that describes potential danger to equipment.

NOTE	The Note symbol highlights text that gives special instructions or information.

Product Overview and Features

Product Overview

The following table gives an overview of the models and accessories of the HP Vectra XU Series PCs.

Flexible Drive A:	Product Number	Hard Drive C:	Disk Controller	Video Controller	Stand-ard RAM	Inte-grated LAN	L 2 Cache
HP Vectra XU 5/75 PC (Cpl: 04/95)							
D3081A	1.44 MB D2035A	None	Integrated SCSI-2/ IDE Interface	Integrated Ultra VGA+ (2MB)	8MB	Yes	256 KB*
D3083A		540 MB IDE (D2395-x)**					
HP Vectra XU 5/90 PC (Cpl: 07/94)							
D3085A	1.44 MB D2035A	None	Integrated SCSI-2 IDE Interface	Integrated Ultra VGA+ (2MB)	8MB	Yes	256 KB*
D3086A		270 MB SCSI (D2385A)					
D3087A		540 MB SCSI (D2398A)					
D3088A (CPL: 04/95)		540 MB IDE (D2395-x)**					256 KB***
HP Vectra XU 5/90C PC (Cpl: 07/94)							
D3091A	1.44 MB D2035A	540 MB SCSI (D2386A)	Integrated SCSI-2 IDE Interface	Matrox Graphics Board Impression + (2MB, up-gradeable to 4 MB)	16 MB	Yes	256 KB***
D3092A		1 GB SCSI (D2076B)					
D3094A		540 MB IDE (D2891B)					

*Asynchronous Cache
**Not available as an accessory
***Burst Synchronous Cache

Flexible Drive A:	Product Number	Hard Drive C:	Disk Controller	Video Controller	Stand-ard RAM	Inte-grated LAN	L 2 Cache
HP Vectra XU 5/90C PC (Cpl: 07/94)							
D3091B	1.44 MB D2035A	540 MB SCSI (D2398-x)*	Integrated SCSI-2 IDE Interface	Matrox Graphics Board Impression + (2MB, up-gradeable to 4 MB)	16 MB	Yes	256 KB**
D3092B		1 GB SCSI (D2904-x)*					
D3094B		540 MB IDE (D2395-x)*					
HP Vectra XU 5 100C PC (Cpl: 05/95)							

D3093A	1.44 MB D2035A	None	Integrated SCSI-2 IDE Interface	Matrox Graphics Board Impression + (2MB, up-gradeable to 4 MB)	16 MB	Yes	512 KB**
D3097A		540 MB IDE (D2395-x)*					
D3098A		540 MB SCSI (D2398-x)*					
D3099A		1GB SCSI (D2904-x)*					

*Not available as an accessory
**Burst Synchronous Cache

Supported Accessories

HP Vectra XU Accessories	Part Numbers
Supported Accessories	
4 MB Memory Upgrade kit	D2690A
8 MB Memory Upgrade kit	D2691A
16 MB Memory Upgrade kit	D2297A
32 MB Memory Upgrade kit	D2298A
Setup Kit (*Getting Started* and *Setting Up Your PC* manuals)	D3080B
Video Memory upgrades	
2MB Video RAM kit for PCI 2+ Matrox card	D3095A
2MB Video RAM kit for Impression+ Matrox card (Revision 3)	D3095B
Processor upgrade	
Pentium 90 Dual Processor Upgrade	D3096A
Pentium 100 Dual Processor Upgrade	D3096B
Video Displays	
Color VGA Display	D1197A
Ultra VGA 1600 Display	D1199A
Monochrome VGA 14-inch Display	D2801A/B
Entry-Level SVGA 14-inch Display	D2802A
Super VGA 1024i 14-inch Display	D2804A
Ergo 1024 14-inch Display	D2805A
Ergo Ultra VGA 15-inch Display	D2806A
Ultra VGA 1280 17-inch Display	D2807A
Super VGA 14-inch Display (Low Emissions)	D2814A
Multimedia Products	
HP Sound DSP 16	
Mass Storage	
Flexible Disk 1.44 MB 3.5-inch	D2035A
Flexible Disk 1.2 MB 5.25-inch	D2881A
Hard Disk 1 GB SCSI	D2076B
Hard Disk 2 GB SCSI	D2077A
Input Devices	
Mouse	C3751A
Keyboard	C3756A

For further information about accessories refer to the *data sheet*, the *HP Vectra PC Service Handbook*, or the *HP Vectra PC Accessory Service Handbook*.

Vectra Products Comparison

This table compares the HP Vectra XU PCs with the HP Vectra XM 486 and HP Vectra XP PCs.

Component	HP Vectra 486 XM series	HP Vectra XP series	HP Vectra XU series
Microprocessor	486s/33: 486SX-33 486/33: 486DX-33 486/50: 486DX2-50 486/66: 486DX2-66	XP/60: 60 MHz Pentium XP/66: 66 MHz Pentium	**XU 5/75: 75 MHz Pentium** **XU 5/90: 90 MHz Pentium** **XU 5/90C: 90 MHz Pentium** **XU 5/100C: 100 MHz Pentium**
Main Memory	32 or 36-bit (80 ns)	36-bit (70 ns)	**32-bit (70 ns)**
· *Standard*	4 or 8 MB	8 MB	**8 or 16 MB**
· *Maximum*	64 MB	192 MB	**256 MB**
Level-one cache memory	8 KB (on the microprocessor)	**8 KB for code, 8 KB for data (both on the microprocessor)**	
Level-two cache memory	0, 128, or 256 KB write-through (on the system board)	256 KB write-through (on the system board)	**256 or 512 KB write-back, on the system board (burst synchronous on C models)**
Video adapter	Integrated HP Ultra VGA 2 (1 MB memory, upgradable to 2 MB)	**Integrated HP Ultra VGA on PCI bus (2 MB video memory, upgradable to 4 MB)**	Integrated HP Ultra VGA on PCI bus (2 MB> video memory) Matrox Video Adapter board on C models, 2MB video memory upgradable to 4 MB)
Hard Disk Drive adapter	Integrated IDE adapter		**Integrated Enhanced IDE and Fast SCSI-2 adapters on PCI bus**
Mass storage	• One front-access 3.5-inch shelf • One front-access 5.25-inch shelf • Two internal 3.5-inch shelves for hard disk drives		• **One front-access 3.5-inch shelf** • **One front-access 5.25-inch shelf** • **One 5.25-inch shelf for a front-access device or hard disk drive** • **One internal 3.5-inch shelf for a hard disk drive**
Integrated ports	1 Bidirectional parallel port 2 Serial ports 1 Infrared link		**1 ECP/EPP bidirectional parallel port** **1 Serial port**
Accessory board slots	Four 16-bit ISA	Two 16-bit ISA One 16-bit PCI One ISA or PCI	**Three 16-bit ISA** **One 32-bit PCI** **One combination ISA or PCI**
Network Interface	Integrated Ethernet with UTP connector (optional board provides coaxial connector)		**Integrated Ethernet interface on PCI bus, with one RJ-45 UTP and one BNC coaxial connector**
Power supply	75 W (full range 90-264 VAC)	100 W (full range 90-132 VAC and 198-264 VAC)	**120 W (full range 90-264 VAC)**
Security	**Keyboard lock, User Password prompt, mechanical cover lock, disk and port disabling Power-on button and [RESET] button disabling**		
Passwords	**User Password and System Administrator Password**		
Preinstalled software	MS-DOS, Windows, HP Dashboard, software drivers, and HPROMInit		**MS-DOS, Windows, HP Dashboard, software drivers, Plug and Play utilities, and HPROMInit**
BIOS ROM	**Flash ROM**		

System ROM localization	**11 languages**

Product Features

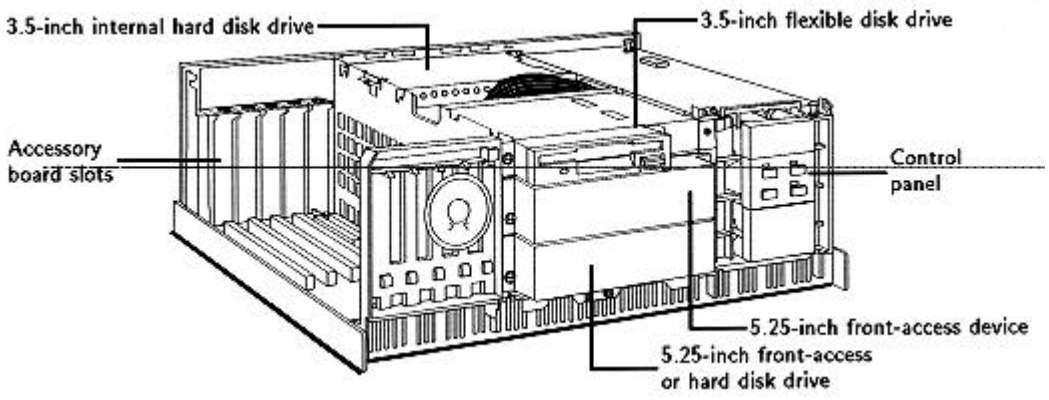
Main features of the System Board

The main features of the system board are:

- Two ZIF sockets: one for the main Pentium processor, and one for the Dual Processor.
- Eight sockets for main memory modules, allowing a maximum of 256 MB.
- 2 MB of video memory (upgradable to 4 MB on C models).
- 256 KB of level-two cache memory.
- 512 KB of level-two cache memory on the 5/100C models.
- A 32-bit PCI local bus for communication between the processor, the main memory, the level-two cache, and the PCI controllers.
- An ISA bus for optional industry-standard accessory boards.
- Two PCI slots, three ISA slots, and one combination ISA/PCI slot.
- Integrated PCI interfaces: Ethernet network, Fast SCSI-2, Enhanced IDE, Ultra VGA. (C models have a PCI Matrox video adapter board.)
- A security system preventing unauthorized use of the PC.
- A facility to update the flash BIOS.
- An I/O controller controlling the parallel and serial ports, and flexible disk drives.
- A keyboard and mouse controller.

NOTE ESDI mass storage devices are not supported.

- **Package.** The HP Vectra XU uses the same full-height desktop package as the HP Vectra NetServer LE series PCs, with slots for five accessory boards.



- **Microprocessors.** The HP Vectra XU models use 75, 90 and 100 MHz Pentium microprocessors.

  The Pentium microprocessor has all the features of the Intel 486 microprocessor. All software written for Intel X86 microprocessors, used in previous HP Vectra models, will run on the Pentium microprocessor. It has new features providing significant enhancements over the Intel 486. The main features are:

- Two instruction pipelines and two floating point units. These can operate independently, executing two instructions per clock cycle.
- Improved floating-point operation using faster algorithms to speed up calculation-intensive software.
- Dynamic branch prediction to anticipate where instructions are heading.
- Two separate 8 KB level-one caches-- one for code and one for data.
- Data transfers to and from the processor are between five and ten times faster than that of the 486. This is mainly due to the 64-bit data bus and instruction pipelining.

- **Dual Pentium Processor.** The HP Vectra XU has a ZIF (Zero Insertion Force) socket on the system board. This allows a Dual Pentium processor to be installed easily. (D3096A for 90 Mhz models, D3096B for 100 MHz models). (Refer to *Installing a Dual Pentium Processor*.)
- **Cache memory.** The HP Vectra XU PCs have 16 KB of level-one cache memory in the microprocessor and 256 KB of level-two cache memory on the system board. 5/100C models have 512 KB of level two cache memory on the system board.
- **CMOS RAM.** System configuration data is held in CMOS RAM, and is backed up with a gold capacitor.
- **Main Memory Modules.** The HP Vectra XU has eight sockets on the system board. Sockets are grouped into four banks, labeled A to D; there are two sockets in each bank. Memory modules must be installed in pairs of the same capacity, beginning with bank A, up to bank D.

  The HP Vectra XU is supplied with 8 or 16 MB of memory as standard, depending on the model, upgradeable to 256 MB. It uses 70 ns, 32-bit memory modules:

  - 4 MB (D2974A)
  - 8 MB (D2975A)
  - 16 MB (D2297A)
  - 32 MB (D2298A).
- **Accessory Board Slots.** Five industry-standard accessory board slots: three 16 -bit ISA slots, one 32 -bit PCI slot, and one combination 16 -bit ISA or 32 -bit PCI slot.
- **Video adapter.** The video adapter has 2 MB of video memory on the system board. C models have a Matrox video adapter board; on these the video memory is upgradeable to 4 MB. The integrated video adapter on the system board, and the Matrox video adapter board, are both PCI devices.

  The integrated video adapter on the system board can display the following resolutions:

	Colors and refresh rates			
Resolution	**16 colors Standard VGA (4bpp*)**	**256 colors (8bpp)**	**64K colors hi-color (16bpp)**	**16.7M colors true-color (32 bpp)**
640 x 480	Not Available	**60/72/75 Hz**		**60/72 Hz**
800 x 600	Not Available			

1024 x 768	Not Available		**70/75/87i** Hz**	Not Available
1280 x 1024	Not Available	**60/75 Hz**	Not Available	Not Available

*bpp:bits per pixel
**interlaced mode

The Matrox video adapter board can display the following video resolutions:

	Video memory for these colors and refresh rates:		
Resolution	**256 colors (8bpp)***	**64K colors hi-color (16bpp)**	**16.7M colors true-color (32 bpp)**
640 x 480		**2 MB 120 Hz**	
800 x 600		**2 MB 120 Hz**	
1024 x 768	**2 MB 120 Hz**		4 MB 76 Hz
1152 x 882	**2 MB 100 Hz**		40 MB 60 Hz
1280 x 1024	**2 MB 90 Hz**	4 MB 90 Hz	Not Available
1600 x 1200	**2 MB 66 Hz**	4 MB 66 Hz	Not Available

*bpp:bits per pixel

- **VESA pass-through connector.** The HP Vectra XU PCs have a VESA pass-through connector for interfacing a second video adapter. On C models, the connector is on the Matrox video adapter board; otherwise the connector is on the system board.
- **Integrated flexible disk drive interface.** The integrated flexible disk drive interface supports up to two flexible disk drives.
- **Integrated IDE interface.** The integrated Enhanced IDE interface supports up to two IDE devices. To use the Enhanced IDE features, hard disk drives must be compliant with Enhanced IDE.
- **Integrated SCSI interface.** The integrated fast SCSI-2 interface supports up to seven SCSI devices.
- **Disk shelves.** All models have a 3.5-inch flexible disk drive in the top shelf. There are three other shelves for optional disk drives:
  - one for a 5.25-inch front-access device
  - one for a 5.25-inch front-access device or hard disk drive
  - one for a 3.5-inch hard disk drive.
- **Supported drives.** The HP Vectra XU PCs support the following flexible and hard disk drives:
  - 3.5-inch, 1.44 MB flexible disk drive (D2035A)
  - 5.25-inch, 1.2 MB flexible disk drive (D2036A)
  - 3.5-inch, 270 MB SCSI-2 hard disk drive
  - 3.5-inch, 540 MB SCSI-2 hard disk drive
  - 3.5-inch, 1 GB SCSI-2 hard disk drive (D2076B)

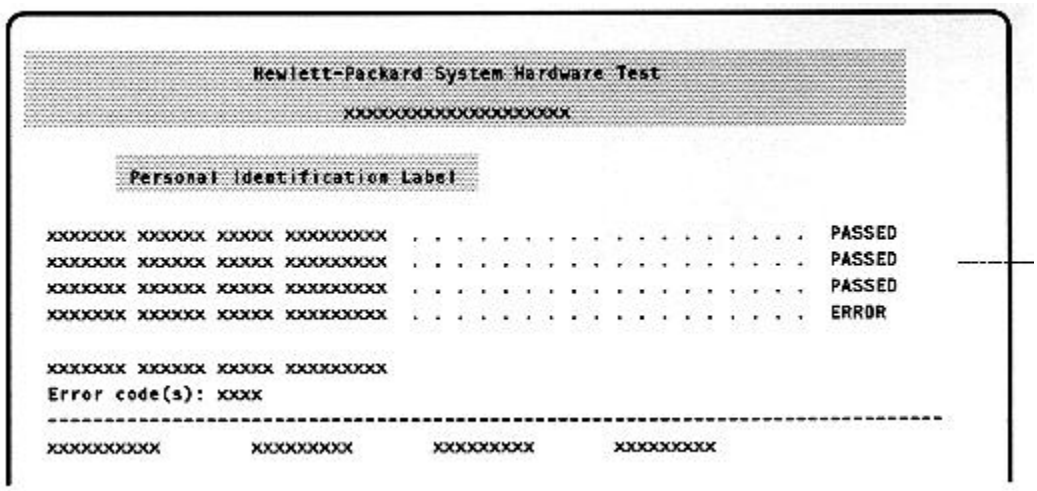
- 3.5-inch, 270 MB IDE hard disk drive (no longer available)
- 3.5-inch, 540 MB IDE hard disk drive (D2395A)
- 3.5-inch, 540 MB SCSI hard disk drive (D2398A)
- 3.5-inch, 2 GB SCSI-2 hard disk drive (D2077A)

- **System ROM.** The HP Vectra XU PCs have a flash system ROM. Using the HPROMInit program, the system ROM can be updated with the latest firmware—available in your language from the HP PC BBS.

  The system ROM contains:

  - The Basic Input Output System (BIOS).
  - A Power-On Self Test (POST) that diagnoses hardware errors, displays error messages, and suggests corrections in local languages.
  - The SETUP program, with context-sensitive help in your language.
  - A LAN remote start program, to start the PC from a network server. This is for use with the integrated Ethernet interface, using either Novell NetWare (version 3.11) or LAN Manager software. The HP Vectra XU uses the RIPL protocol, like the HP Vectra 486 XM PCs.
  - A PC identification field of up to 80 characters, including one carriage return (a password protected string is displayed on the POST screens).

When the PC starts, the results of the Power-On Self-Tests (POST) are displayed.


Hewlett-Packard System Hardware Test
xxxxxxxxxxxxxxxxxx
Personal Identification Label
xxxxxx xxxxxx xxxxx xxxxxxxx . . . . . PASSED
xxxxxx xxxxxx xxxxx xxxxxxxx . . . . . PASSED
xxxxxx xxxxxx xxxxx xxxxxxxx . . . . . PASSED
xxxxxx xxxxxx xxxxx xxxxxxxx . . . . . ERROR
xxxxxx xxxxxx xxxxx xxxxxxxx
Error code(s): xxxx
xxxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

If the POST detects an error:

- Press **[ENTER]** to display a message describing the error and how to fix it
- Press **[F2]** to start the SETUP program, to check the configuration
- Alternatively, press **[F1]** to continue.

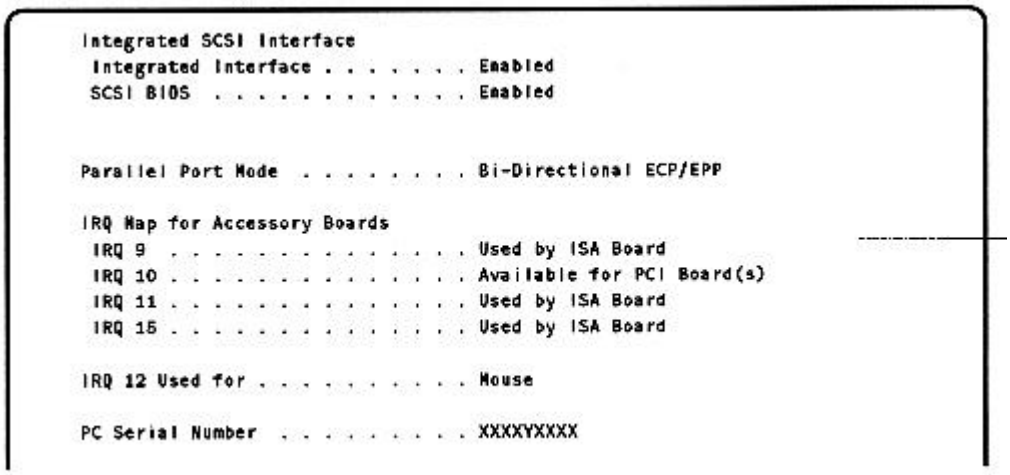
SETUP program

The HP Vectra XU has an integrated SETUP program, similar to that used by the HP Vectra 486 XM and HP Vectra 486 XP PCs.

To start the SETUP program, press **[F2]** when the message `<Setup=F2>` appears after the POST.

New fields specific to the HP Vectra XU are:

- Integrated SCSI Interface
- Bi-Directional ECP EPP parallel port mode
- IRQ Map for Accessory Boards


Integrated SCSI Interface
Integrated Interface . . . . . Enabled
SCSI BIOS . . . . . Enabled
Parallel Port Mode . . . . . Bi-Directional ECP/EPP
IRQ Map for Accessory Boards
IRQ 9 . . . . . Used by ISA Board
IRQ 10 . . . . . Available for PCI Board(s)
IRQ 11 . . . . . Used by ISA Board
IRQ 15 . . . . . Used by ISA Board
IRQ 12 Used for . . . . . Mouse
PC Serial Number . . . . . XXXXYXXXX

- **Preinstalled software.** Models with hard disk drives are supplied with a mouse and preinstalled software:
  - MS-DOS
  - Windows
  - Dashboard
  - Universal client LAN connection software
  - Ethernet LAN drivers
  - Video drivers
  - SCSI-2 drivers
  - Plug and Play ISA Configuration Utility
  - HPROMInit
  - HP PC Identification Windows utility.

  The first time the PC is powered ON, a screen appears. This preinstalled software allows the user to set the keyboard type, display type and language, and to set up the printer. The preinstalled software also runs the HPROMInit utility.

On models with no hard disk drive, the utilities and drivers are supplied on diskettes. The HPROMInit utility should be run to update the system ROM, and set the language for the SETUP program and system error messages.

- **Supported LANs.** The HP Vectra XU has an integrated IEEE 803.3 Ethernet interface with both an RJ-45 UTP (Unshielded Twisted Pair) and a BNC coaxial connector on the system board.

  The LAN remote start program in the system ROM allows the PC to start (boot) from either a Novell NetWare or LAN Manager server, using the integrated Ethernet interface.

- **Control panel.** The HP Vectra XU has the same control panel as the HP Vectra NetServer LE series PCs, with the following features:
  - a power button
  - a power light
  - a press and hold RESET button
  - a Keyboard Lock Button
  - a hard disk drive activity light.
- **Security features.** The HP Vectra XU provides the following comprehensive security features to prevent unauthorized access to the PC and data:
  - a User Password to enable the User Password prompt, Keyboard Lock Button, and Keyboard Lock Timer
  - User Password prompt
  - a Keyboard Lock Button to lock the PC and blank the screen
  - a Keyboard Lock Timer, to lock the PC when the keyboard has not been used for a specified time
  - a System Administrator Password to protect the configuration settings, except User Preferences
  - communications port protection (ports can be disabled in SETUP) – to stop unauthorized use of printers, modems or other devices
  - disk drive protection (disks can be disabled, write protected, or "boot" protected in SETUP) – to prevent copying data or running programs from disk, or loading an alternative operating system
  - an internal security mode switch to protect the configuration, preventing changes being made by the SETUP program
  - an internal switch to protect the system ROM from being upgraded
  - a lock on the PC's cover, to prevent access to the inside of the PC
  - PC Serial Number and PC identification protected by passwords.
- **External connectors.** The HP Vectra XU has:
  - a mini-DIN keyboard connector
  - a mini-DIN mouse connector

- a bidirectional ECP EPP parallel port (software drivers provided with the peripheral must be installed to use ECP or EPP modes)
- a serial port
- an RJ-45 UTP Ethernet LAN connector
- a BNC coaxial Ethernet LAN connector
- a Fast SCSI-2 connector.

- **Internal connectors.** The HP Vectra XU has:
  - a Fast SCSI-2 connector
  - an Enhanced IDE connector
  - a Flexible disk drive connector.

Operating Systems Supported

- MS-DOS version 3.3, 4.x, 5.0, and above.
- Microsoft Windows 3.1, and above.
- Microsoft NT with APIC support.
- HP NewWave version 3.0, 4.0, and above.
- OS/2 version 2.0, and above.
- UNIX/386 System V from SCO, version 3.2V4.1 and above.
- VP/ix 1.2 Integrated DOS Environment.
- Novell NetWare 3.12 and above.
- LAN Manager 2.1 and above.

Documentation

Description	Part Number
Manuals supplied with the PC	
Setting Up Your PC	D3080B kit plus language option
Getting Started	D3080B kit plus language option
Network Administrator Guide	5962-3401
Preinstalled software manuals	
Support manuals that may be ordered from SMO (Support Materials Operations)	
HP Vectra PC Service Handbook (8th Edition)	5963-6103
HP Vectra Accessory Service Handbook (4th Edition)	5963-6104
HP Vectra Technical Reference Manual: Hardware and BIOS	on-line edition only

PC Hardware Structure

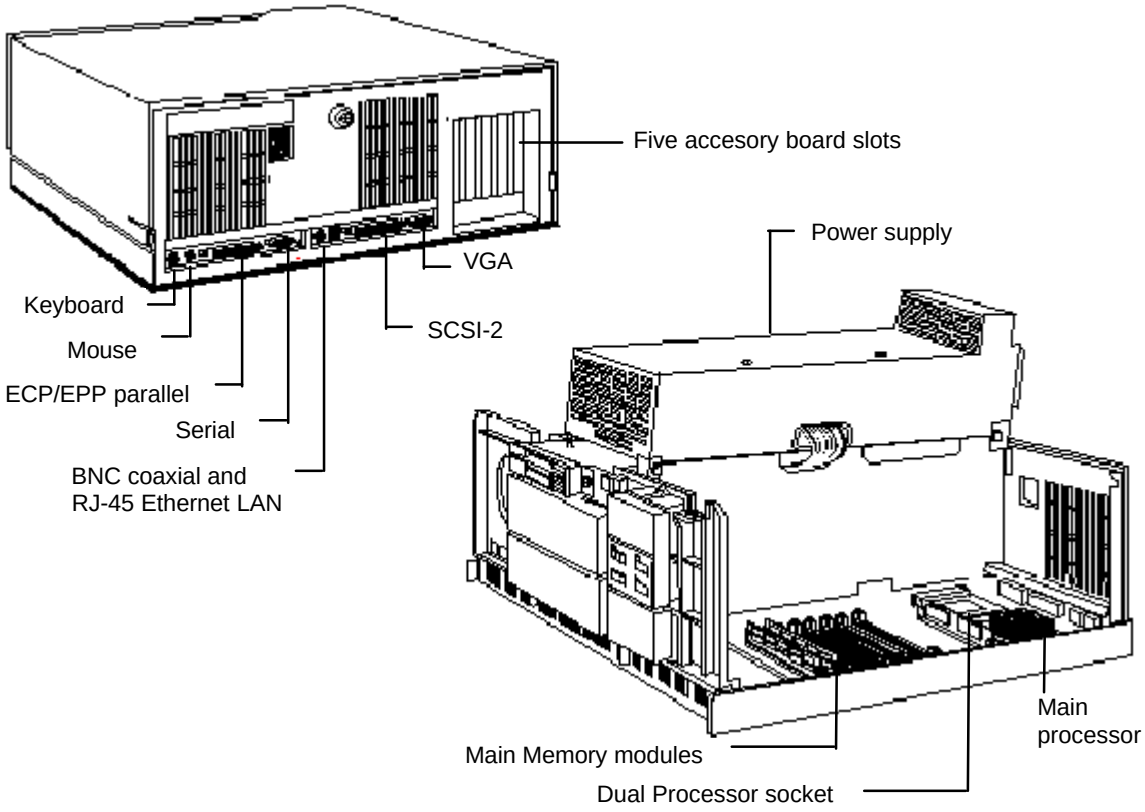
Packaging

CAUTION Unplug the power cord before removing the cover.

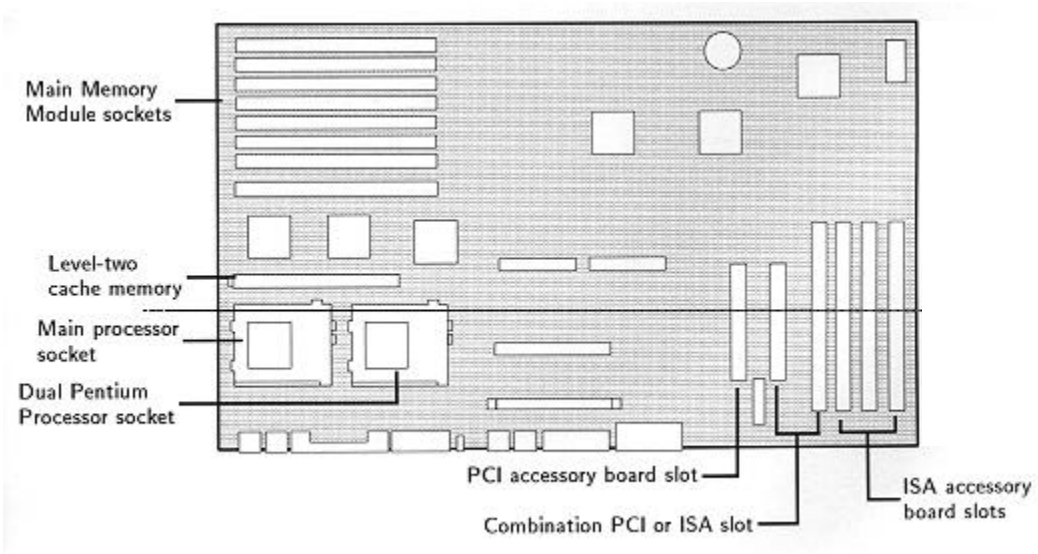
The HP Vectra XU uses the same full-height desktop package as the HP Vectra NetServer LE series PCs. The main external features are:

- The control panel:
  - power button
  - power light
  - *press and hold* RESET button
  - Keyboard Lock Button
  - hard disk drive activity light
- Connectors for I/O devices:
  - parallel and serial ports
  - Ethernet LAN with RJ-45 UTP and BNC coaxial connectors, and a Link Beat LED
  - Fast SCSI-2 connector
- Four shelves for 3.5-inch and 5.25-inch devices
- Nameplate.

External Connectors and Internal Components



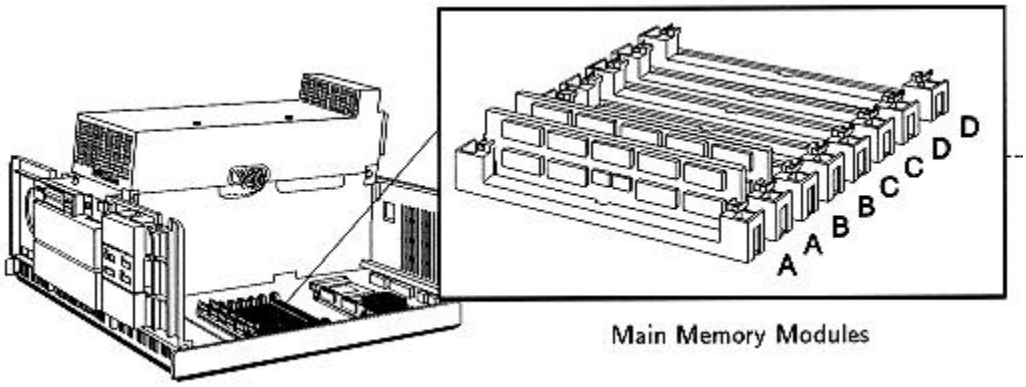
System Board



Accessories

Installing Main Memory

The HP Vectra XU is supplied with 8 or 16 MB of memory, depending on the model. It has eight sockets for main memory modules on the system board. Sockets are grouped into four banks, labeled A to D. There are two sockets in each bank. Main memory modules can be installed up to a maximum of 256 MB. 4 MB (D2974A), 8 MB (D2975A), 16 MB (D2297A), and 32 MB (D2298A) memory modules are available.



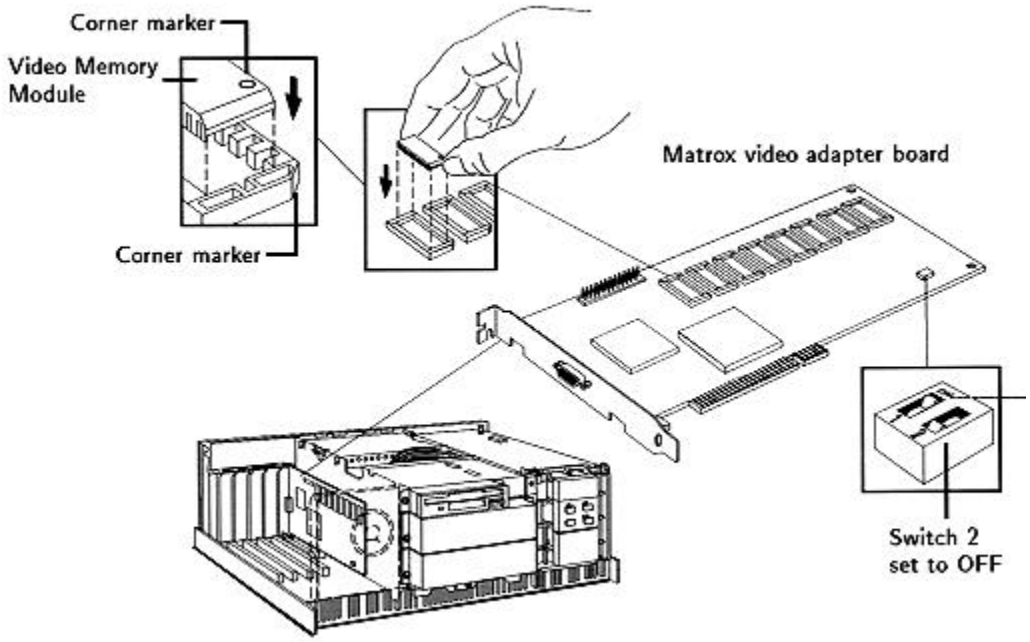
Main Memory Modules

Installing Video Memory

HP Vectra XU PCs (up to C models) are supplied with integrated video and 2 MB of video memory which cannot be upgraded. C models have a Matrox video adapter board, and the video memory can be upgraded to 4 MB.

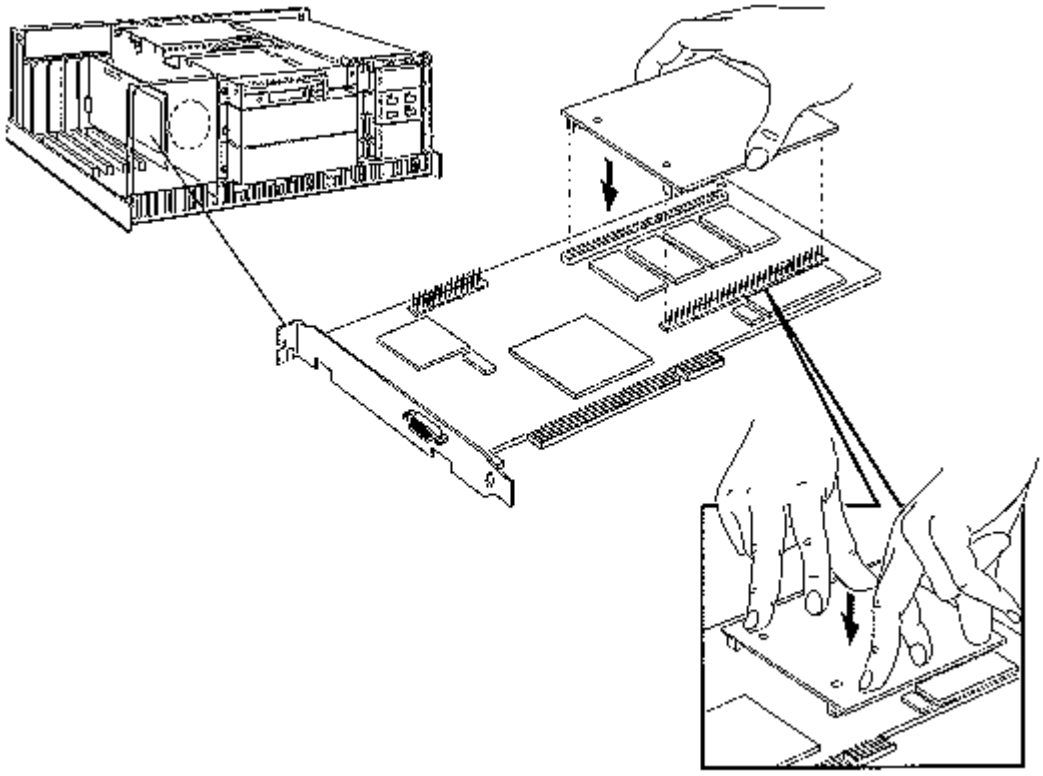
The upgrade structure depends on the Matrox board which is installed. For Models MGA-PCI/2+, the upgrade (Part Number D3095A) is carried out in the following way:

1. align the video memory module and socket corner markers
2. press the module into place
3. repeat for each module.
4. Set switch 2 on the video adapter board to OFF.



Installing Accessories

For the Revision 3 Matrox board, the upgrade (Part Number D3095B) is effected with one upgrade module. Position the video memory module over the 2MB RAM socket, with its components facing downwards as shown in the diagram. Slowly and evenly press the upgrade module into place.

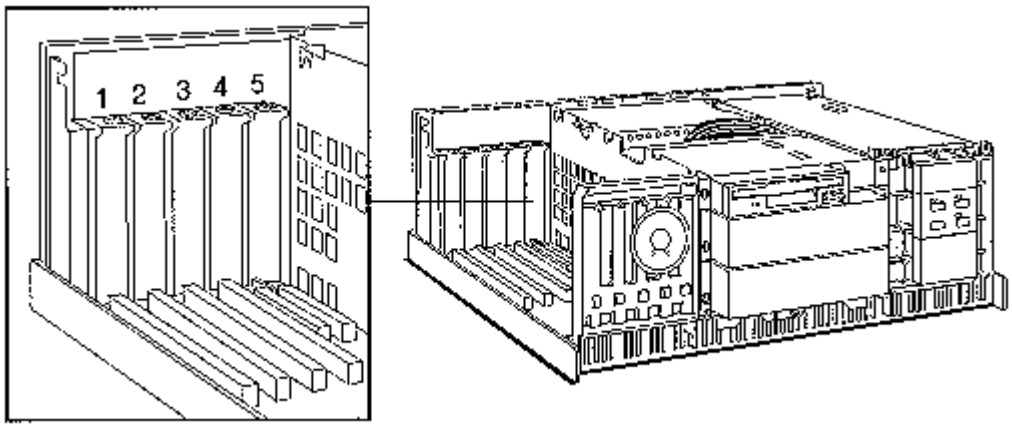


Installing Accessory Boards

HP Vectra XU PCs have five accessory board slots:

- Slot 1 can be used for full-length 16-bit ISA boards.
- Slot 2 can be used for full-length 16-bit ISA boards.
- Slot 3 can be used for full-length 16-bit ISA boards.
- Slot 4 can be used for either full length 32-bit PCI or 16-bit ISA boards.
- Slot 5 can be used for half-length 32-bit PCI boards.

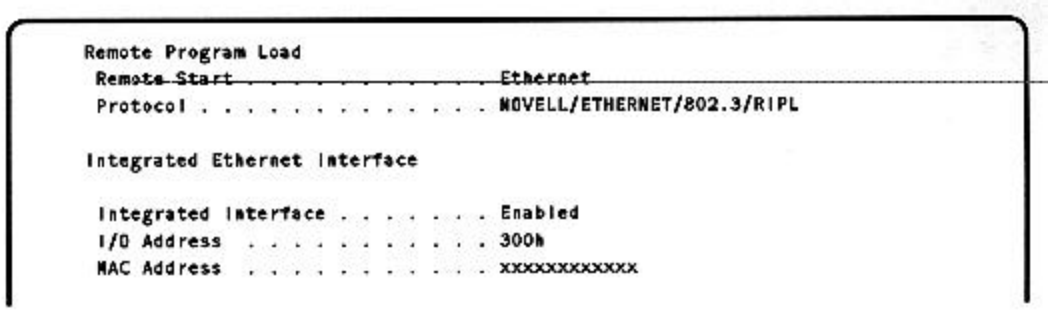
NOTE If your PC has a Matrox Board installed, slot 4 or 5 may not be free.



Configuring the LAN Interface

Use the SETUP program to configure the integrated Ethernet interface.

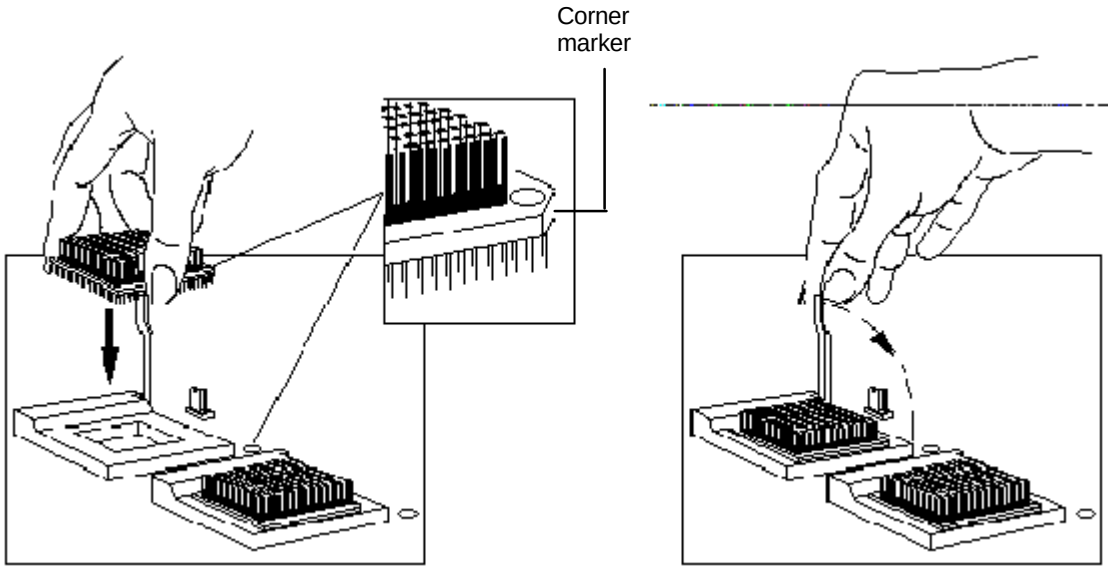
- Remote Program Load lets the PC start from the server.
- The Integrated Ethernet Interface configuration is selected in SETUP.


Remote Program Load
Remote Start . . . . . Ethernet
Protocol NOVELL/ETHERNET/802.3/RIPL
Integrated Ethernet Interface
Integrated Interface . . . . . Enabled
I/O Address 300h
MAC Address xxxxxxxxxxxx

Installing a Dual Processor

HP Vectra XU PCs have a ZIF (Zero Insertion Force) socket. This allows a Dual Processor (D3096A for 90 MHz models,D3096B for 100 MHz models) to be installed easily. If you install a faster processor, you must change the operating frequency of the bus using the configuration switches. (Refer to System Board Switches, later in this chapter.)

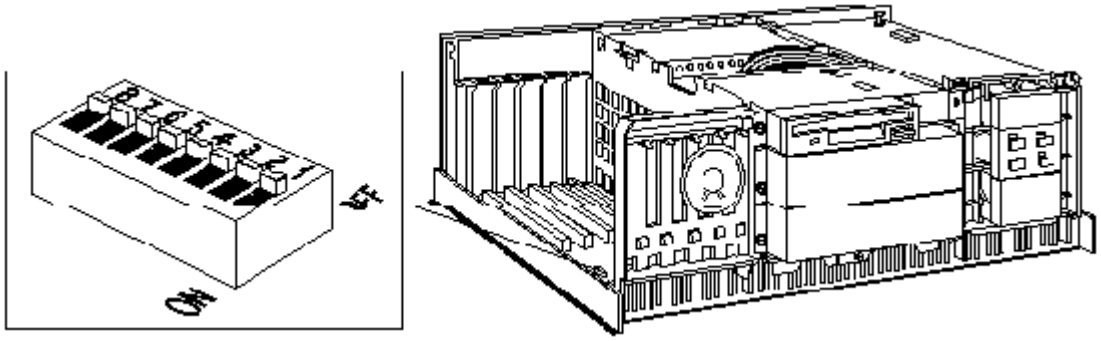
1. Unlock the ZIF socket by raising the locking lever.
2. Position the processor over the socket, aligning the processor and socket corner markers correctly.
3. Check that the processor is seated correctly in the socket, then lower the ZIF socket lever to lock the processor into place.



4. Check the system board switches are set correctly—the operating frequency of the processor bus must correspond with the two processors. (Refer to System Board Switches, later in this chapter.)

System Board Switches

HP Vectra XU PCs have a bank of eight system board switches.



Switch	Use this switch to:
	Switch Block SW1
2 *PSWRD*	Enable or clear (and disable) User and System Administrator passwords stored in EEPROM: • **OFF to enable passwords** • ON to clear passwords Switch ON if you need to clear the current passwords.
3 *SECUR*	Disable or enable security mode. Security mode prevents changes to the PC's configuration using the PC's SETUP program: • **OFF to disable security mode** • ON to enable security mode Switch ON if you don't want anyone to change the PC's configuration.
4 *CONFG*	Retain or clear the configuration stored in EEPROM: • **OFF to retain configuration** • ON to clear configuration Switch ON if you need to clear the PC's configuration information, for example, if the ocnfiguration is corrupted.
5	Reserved
6	Reserved

Switch 1	Switch 6	Switch 7	External/Internal Bus Frequency
OFF	OFF	ON	50/75
ON	OFF	ON	50/100
OFF	OFF	OFF	60/90
OFF	ON	ON	66.66/100

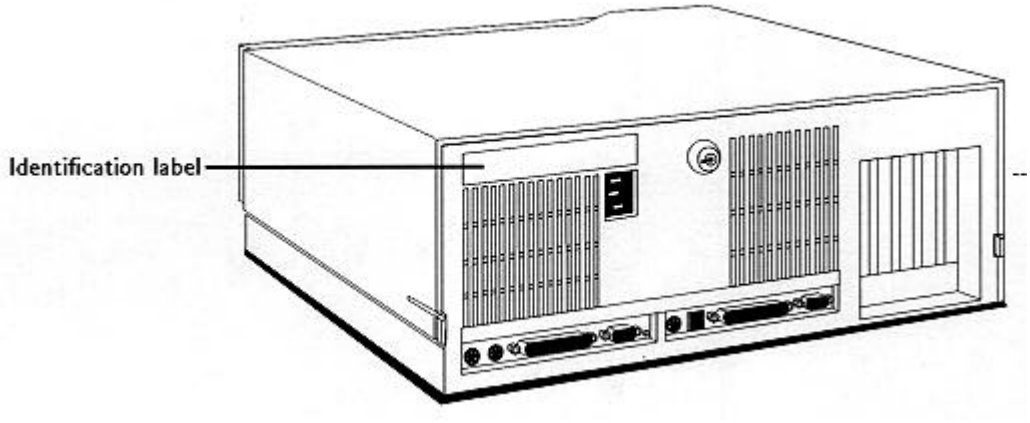
CAUTION	Do not select any other switch combinations for switches 1, 6, and 7. Doing so may damage your PC.

Troubleshooting and Repair

Product Identification

The rear of the computer has an identification label that shows the:

- product name, for example, HP Vectra XU
- system (product) number, for example D3086A
- serial number.



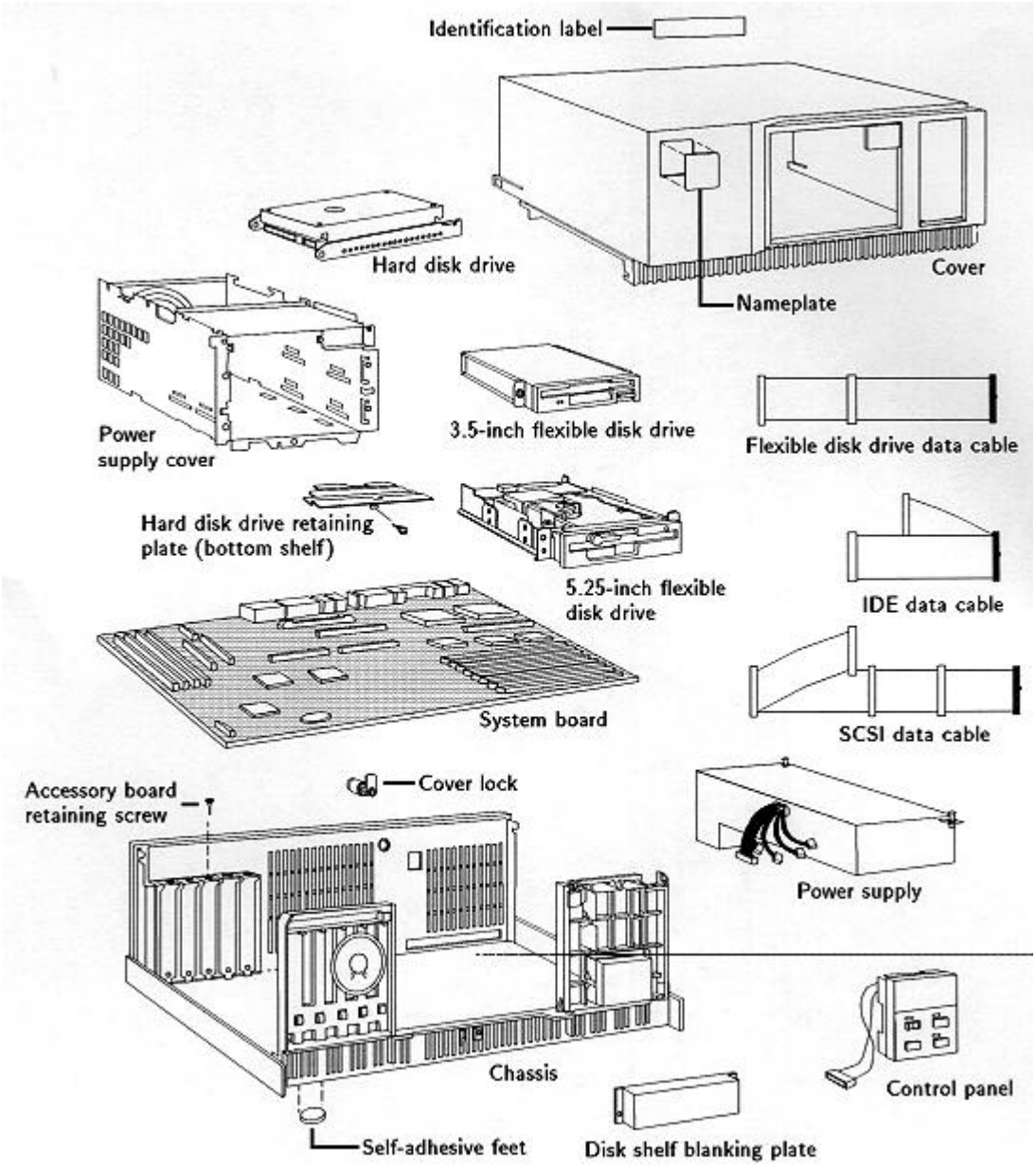
When identifying the product (for example, to a Response Center), you only need the system (product) number and serial number.

NOTE The PC Serial Number is also written in the System ROM, and can be read in SETUP.

Field Replaceable Parts

Description	Replacement Part Number	Exhange Part Number
Box Assembly: Top Cover-Bezel Assembly Board Guide Assembly Base Assembly Bridge/Lid Assembly PCI Card Guide	5063–5735	–
Serial Label	–	–
Flexible Disk Drive	D2035–63004	–
Mounting Rails for 3.5-inch non-HP Disk Drives	5063–0309	–
Flexible Disk Drive	D2882–63001	–
5.25-inch, h-h, (5 pack) for non-HP flexible disk and tape drives	Order Product Number D2199A (updated version of D2038A)	
Flexible Disk Drive Cable, 3.5 and 5.25-inch	5182–10097	–
Hard Disk Cable (IDE drive)	5181–1097	–
Hard Disk Cable (SCSI drive)	5063–2742	
SCSI Disk ACtivity Light Cable (supplied with SCSI drive)	5181–5742	–
Snap Fastener	1390–0882	–
Power Suppy Assembly (120W)	5063–4569	–
Status (Control) Panel	5062–5600	–
Filler Panel, 5.25-inch	5062–5597	–
Filler Panel, 3.5-inch	5062–5595	–
Control Panel Filler Assembly	5063–0303	–
Bumber Foot	5131–0394	–
Speaker Assembly	02620–60016	–
I/O Panel, blank	45935–00004	–
Screw, 6-32 Pilot Point	0624–0727	–
Keylock Assembly	5062–5599	–
Retainer Assembly (bottom disk)	5001–6853	–
Fan Assembly	5063–0307	–
Matrox Video Board, PCI/2	5063–5783	–
Matrox Video Board, Impression+, Rev 3	5063–7060	–
System Board: (includes integrated SCSI-2, IDE, and Ultra VGA controller		
Vectra XU System Board for 5/75, 5/90, 5/90C Models	D3081–63002	D3081–69002
Vectra XU System Board for 5/100C Models	D3097–63001	D3097–69001
Matrox Accessories:		

Matrox Video RAM kit (D3095A) for PCI/2+ card	5063–4588	–
Matrox Video RAM kit (D3095B) for Impression+ card (Revision 3)	5063–7061	–
Processors:		
Pentium (P54C/75)	5063–7058	–
Pentium (P54C/90)	5063–7065	–
Pentium (P54C/100)	5063–7059	–
Cache Memory Modules:		
256 KB Level-Two (Burst Synchronous)	5063–45585	–
256 KB Level-Two (Asynchronous)	5063–4572	–
512 KB Level-Two (Burst Synchronous)	5063–7070	–
Main Memory Modules:		
4-MB Main Memory Module	D2974–63001	–
8-MB Main Memory Module	D2975–63001	D2975–69001
16-MB Main Memory Module	D2297–63001	D2297–69001
32-MB Main Memory Module	D2298–63001	D2298–69001
BIO Update Disks	Update disks available on the HP PC BBS	
Nameplate:		
HP Vectra XU 5/75 Logo	5042–1142	–
HP Vectra XU 5/90C Logo	5042–0585	–
HP Vectra XU 5/90 Logo	5042–0598	–
HP Vectra XU 5/100C Logo	5042–1143	–
Support Manuals:		**Part Number**
Familiarization Guide		D308xA+49A–90001
Technical Reference Manual: Hardware and BIOS (Electronic file only)		5962–3417


Identification label
Hard disk drive
Cover
Nameplate
Power supply cover
3.5-inch flexible disk drive
Flexible disk drive data cable
Hard disk drive retaining plate (bottom shelf)
5.25-inch flexible disk drive
IDE data cable
System board
SCSI data cable
Accessory board retaining screw
Cover lock
Power supply
Chassis
Control panel
Self-adhesive feet
Disk shelf blanking plate

Warranty

The PC is covered by a one-year on-site, plus two years return-to-HP, warranty. Customers are responsible for owning master copies of preinstalled software.

For preinstalled software and utilities, the customer can make master diskettes (by means of the Master Diskette Creation Utility in the HPUtils group in Windows) or can order master diskettes of software (for ordering procedure refer to the software license certificate included with the PC).

If the customer has a software failure, the software should be reinstalled from the master copies.

For further details of support services and support conditions, refer to the support plan and the Support section in the manual *Setting Up Your PC*.

Using SETUP to Configure the PC

For more information on using the SETUP program, refer to chapter 2 of the manual *Setting Up Your PC* supplied with the PC.

SETUP Options

Field name	Purpose	Options	Remarks
Date Time	Sets date and time		YY/MM/DD HH:MM:SS
USER PREFERENCES			
User Password	Prevents unauthorized access to your PC	Set/Not Set	To set your password press **[ENTER]**, type your password and press **[ENTER]**, type your password and press **[ENTER]** again and the screen will show that the password is set
Keyboard Lock Timer	Locks the keyboard after a specified time of non use	Disabled/1 to 75 minutes	To stop using Keyboard Lock Timer, select Disabled
Screen Blanking	Blanks the screen when the PC is locked with the Keyboard Lock Button or Keyboard Lock Timer	Enabled/Disabled	
Key Click Volume	Sets the volume of the click when keys are pressed	0 to 10	
Key Autorepeat Speed	Sets the speed at which a key's function repeats	2 to 30 per second	
Delay Before Autorepeat	Sets the delay before a key automatically repeats its function	0.25 to 1 per second	
Power-on NumLock State	Sets whether the NumLock key is enabled when the PC is powered on	On/Off	
Processor	Shows the type of processor in the PC		Auto detect
Computer Speed	Shows the operating frequency of the processor		Auto detect
Coprocessor	Shows the type of coprocessor in the PC		Auto detect; on theVectra XU the coprocessor is integrated
MEMORY SIZE			
Base, on System Board Base, on Accessory Board Base, TOTAL Reserved	Confirms that SETUP has detected and configured the memory size fields	512 KB / 620 KB	Make sure the value in the TOTAL field is correct
Memory Hole Above 1 MB Extended TOTAL		Disabled 1 to 15 MB	
Memory Hole Below 1 MB	Tells SETUP the size and location of an ISA accessory board's memory mapped below 1MB	Disabled/Board's base address and memory used	To be used if installed ISA board has memory mapped below 1MB, refer to accessory boards manual

Memory Cache	Controls level-one and level-two memory cache	On/Off	For maximum performance set to On
IDE HARD DISK DRIVES INTERFACE			
Drive 1	Defines the primary IDE hard disk drive	Configured None or SCSI Custom	Configuration is automatic for HP IDE hard disk drives Only use the Custom option for non-HP IDE hard disk drives
Drive 2	Defines the secondary IDE hard disk drive	Configured None or SCSI Custom	Configuration is automatic for HP IDE hard disk drives Only use the Custom option for non-HP IDE hard disk drives
Data Transfer Method		Enhanced Standard	Select Enhanced for maximum performance, or Standard if IDE devices do not work properly.
Translation Method		Automatic Extended CHS Standard CHS LBA	For hard disk drives with more than 1023 cylinders: select Automatic for MS-DOS, Extended CHS for Netware, Standard CHS for UNIX, or LBA for OS/2 2.x.
Integrated Interface	Defines whether or not the integrated IDE interface is used	Enabled/Disabled	Configure any controller board according to its manual
INTEGRATED SCSI INTERFACE			
Integrated Interface	Defines whether or not the integrated SCSI interface is used	Enabled/Disabled	Configure any controller board according to its manual
SCSI BIOS	Operates SCSI devices	Enabled/None	
FLEXIBLE DISK DRIVES			
Drive 1	Defines the top flexible disk drive	None/3.5-inch 1.44 MB	Detected by SETUP
Drive 2	Defines the second flexible disk drive	None/3.5-inch 1.44 MB 5.25-inch 360 KB/1.2 MB	Detected by SETUP
Bootable drive	Defines the flexible disk drive from which to start (boot) the system	Drive 1/Drive 2	
Interface	Defines whether or not the flexible disk drive controller is integrated	Integrated controller board	Configure any controller board according to its manual
SECURITY FEATURES			
System Administrator Password	Password to prevent unauthorized access to configuration settings in SETUP	Set Not Set	
Start With Keyboard Locked		Enabled/Disabled	
Start From Flexible Disk		Enabled/Disabled	
Start From Hard Disk		Enabled/Disabled	
Flexible Disk Drives		Enabled/Disabled	
Writing on Flexible Disks		Allowed/Not Allowed	

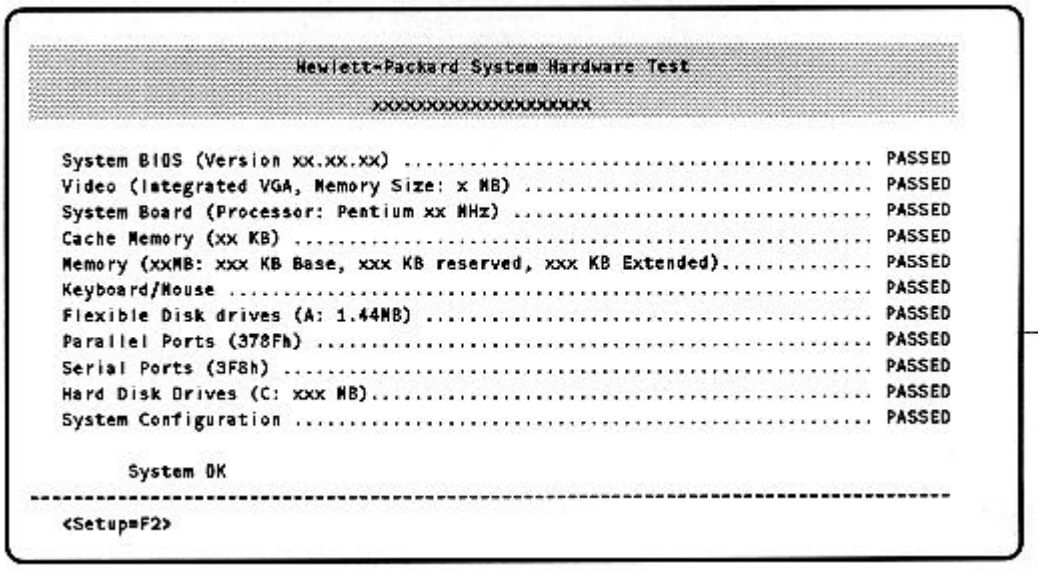
Parallel Port		Parallel 1 (378 h, IRQ7) Parallel 2 (278 h, IRQ5) Off	
Parallel Port Mode		Centronics (R) Bi-directional ECP Bi-directional EPP	If the peripheral has an ECP EPP interface, use a compatible cable
Serial Port		Serial 1 (3F8 h, IRQ4) Serial 2 (2F8 h, IRQ3) Serial 3 (3E8 h, IRQ4) Serial 4 (2E8 h, IRQ3) Off	They cannot be set to the same address
REMOTE PROGRAM LOAD			
Remote Start	Specifies if a network is used to load the computers operating system	Ethernet Disabled	If disabled the protocol field defaults to Not Used
Protocol	Specifies the type of remote boot protocol	Not Used LAN Manager Ethernet Novell Ethernet	
INTEGRATED ETHERNET INTERFACE			
Integrated Interface	Enable or disable the integrated Ethernet system	Enabled Disabled	
MAC Address	Address used by LAN drivers	Address displayed	A unique identification number used by the LAN adapter(s). If the system board is changed, the LAN system administrator must be informed.
Primary Adapter	Configures for the correct video adapter	EGA VGA or similar Monochrome CGA Multimode 80 CGA Multimode 40	If the PC has a Matrox video adapter board, SETUP cannot be used to configure the board.
Video BIOS shadowing	Allows Video BIOS to be copied into main memory	Enabled Disabled	If Video BIOS is used, it is automatically copied into main memory
640 x 480 mode		60 72 Hz	If the PC has a Matrox video adapter board, SETUP cannot be used to configure the board. (Refer to chapter 2 of the *Setting Up Your PC* manual, supplied with the PC.)
800 x 600 mode		72 75 Hz	
1024 x 768 mode		70 75 87i* Hz	
1280 x 1024 mode		60 75 Hz	
IRQ 9	If you've installed an ISA board, this is used to tell SETUP which IRQ the board uses, and allows PCI boards to be configured automatically	Used by ISA board Available for PCI Board(s)	
IRQ 10		Used by ISA board Available for PCI Board(s)	Always leave two IRQs set as Available for PCI Board(s)
IRQ 11		Used by ISA board Available for PCI Board(s)	
IRQ 15		Used by ISA board Available for PCI Board(s)	
IRQ 12		Used by Mouse Available for Board(s)	IRQ12 is normally used by the mouse
BIOS Version	States BIOS Used		Automatically detected

PC Serial Number	States serial number	Automatically detected if the original system board is present, if changed the serial number will be blank. It is possible to use MS-DOS, SETUP and HP Vectra diagnostics without it being set. POST will detect no serial number as an error. Follow instructions on screen to enter the new number, when completed this will then appear on future setup screens.

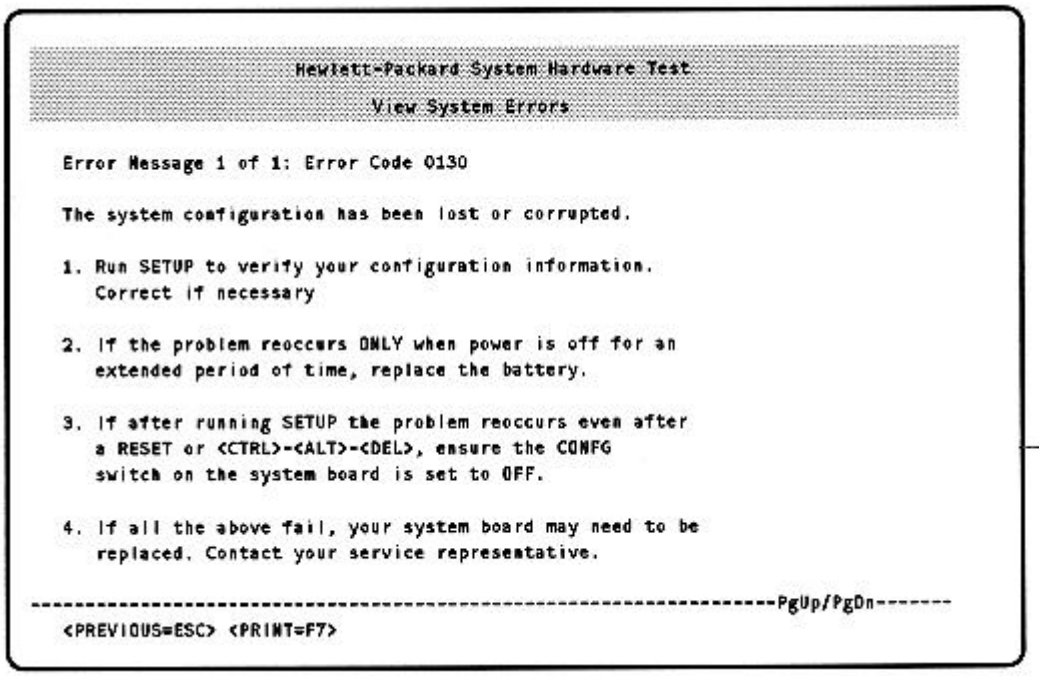
*interlaced mode

Power-On Self Tests (POST)

When the PC is switched on or reset, a Power-On Self Test (POST) is performed, testing the system hardware.


Hewlett-Packard System Hardware Test
xxxxxxxxxxxxxxxxxxx
System BIOS (Version xx.xx.xx) ..... PASSED
Video (Integrated VGA, Memory Size: x MB) ..... PASSED
System Board (Processor: Pentium xx MHz) ..... PASSED
Cache Memory (xx KB) ..... PASSED
Memory (xxMB: xxx KB Base, xxx KB reserved, xxx KB Extended)..... PASSED
Keyboard/Mouse ..... PASSED
Flexible Disk drives (A: 1.44MB) ..... PASSED
Parallel Ports (378Fh) ..... PASSED
Serial Ports (3F8h) ..... PASSED
Hard Disk Drives (C: xxx MB)..... PASSED
System Configuration ..... PASSED
System OK
<Setup=F2>

If an error is detected, the error message utility displays an error diagnosis and corrective action. For example:


Hewlett-Packard System Hardware Test
View System Errors
Error Message 1 of 1: Error Code 0130
The system configuration has been lost or corrupted.
1. Run SETUP to verify your configuration information.
Correct if necessary
2. If the problem reoccurs ONLY when power is off for an
extended period of time, replace the battery.
3. If after running SETUP the problem reoccurs even after
a RESET or <CTRL>-<ALT>-<DEL>, ensure the CONFG
switch on the system board is set to OFF.
4. If all the above fail, your system board may need to be
replaced. Contact your service representative.
PgUp/PgDn
<PREVIOUS=ESC> <PRINT=F7>

Updating the System ROM

On models with a hard disk drive, a screen appears the first time the PC is powered ON. This screen allows the user to set up the preinstalled software for the keyboard type, language, and display type, and to set up the printer.

The HPROMInit utility updates the system ROM and sets the language for SETUP, the error message utility, and the system error messages. The HPROMInit utility should be run from diskette on models without a hard disk drive.

The HPROMInit utility should be run if the following message appears:

```
Cannot display error messages
Flash ROM may be defective
```

Re-initializing the system ROM:

1. If the HPROMInit utility is on the hard disk drive, it must be copied onto a "bootable" diskette as follows:
   a. Insert a 1.44 MB 3.5-inch diskette in drive A, and type:
      `FORMAT A: /S` [ENTER]
   b. When the formatting has finished, type:
      `COPY C:\HPUTILS\HPINIT\*.* A:`[ENTER]
   c. When the copying is completed, leave the diskette in drive A and press RESET. The ROM initialization procedure finishes.
2. Remove the HPROMInit diskette from drive A.
3. To use the updated system ROM, switch the PC OFF and then ON.

Diagnostic Utility

The HP Vectra Diagnostic Utility is common to the HP Vectra product line. It is provided on a Bulletin Board.

To use the Diagnostic Utility:

1. Insert a 1.44 MB 3.5-inch diskette in drive A, and type:

   FORMAT A: /S [ENTER]

2. When the formatting has finished, type:

   DEL A:\COMMAND.COM[ENTER]

3. Leave the diskette in drive A.
4. Download the ZIP file of the Diagnostic Utility to a directory on your hard disk.
5. Uncompress the ZIP file.
6. Copy all the files, except the ZIP file, to the diskette in drive A.
7. Print out the Read.me file provided with the Diagnostic Utility files.
8. Follow the Read.me file instructions to use the Diagnostic Utility.

The Diagnostic Utility has a menu-driven graphical interface for selecting tests for the HP Vectra XU PC. The Diagnostic Utility contains:

- in-depth Power-On-Self-Tests
- tests for peripheral boards
- an inspection utility to view low-level configuration information.
- a memory module locator utility to decode memory test errors and indicate which memory module has failed.
- an error code display utility to explain error codes and indicate the probable cause of the error.

New revisions of the Diagnostic Utility are available on the HP PC BBS.